



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,628	07/29/2003	David P. Dumas		9067

7590
DAVID P. DUMAS
7572 MONA LANE
SAN DIEGO, CA 92130

EXAMINER

NOGUEROLA, ALEXANDER STEPHAN

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

06/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/630,628	Applicant(s) DUMAS, DAVID P.	
	Examiner ALEX NOGUEROLA	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/25/08 (Response to Office Action).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) 28-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed February 25, 2008 ("Amendment") have been fully considered but they are not persuasive.

Rejections of claims 1, 2, 4, and 6 under 35 U.S.C. 103(a) as being obvious over Soane, Encyclopedia, Handbook, and Jons

Applicant argues, "... the unique properties of polyol(alkyl carbonate) polymers, ... allows the development of the claimed devices that do not dissolve in non-aqueous solvents, that do not melt under high applied electrical fields, and do not short under high electrical fields as would be the case with thermoplastics such as polycarbonates." See the bottom of page 4 of the Amendment. The instant application has one independent claim, claim 1: "An electrokinetic device fabricated from a polyol (allyl carbonate) polymer."

None of the claims specify which part of the electrokinetic device is fabricated from a polyol (allyl carbonate) polymer. "Fabricated" can be interpreted broadly as any portion or part thereof. It could be a support structure of the device, such as a stand, or

Art Unit: 1795

even just a small label attached to a corner of the device. That is, the portion of the device that is fabricated from a polyol (allyl carbonate) polymer could be a portion that is largely irrelevant to the actual electrokinetic process performed with the device. Thus, the alleged unique benefits are meaningless from this point of view.

None of the claims specify any operating conditions, such as use of non-aqueous solvents or the use of high electrical fields, or properties of any portion of the device directly related to the electrokinetic process. So, the device could be used under similar conditions as the polycarbonate electrokinetic device of Soane, in which case the choice of one polymer or the other is arbitrary (where properties are similar) or just a matter of optimization, for example, in regard to transparency of the polymer to certain detection or excitation frequencies. Claim 2 has to small extent implicit conditions of use; however, claim 2 is just a “grocery list” of intended uses, most, if not all of which could be performed with a polycarbonate electrokinetic device.

Applicant has not provided data supporting the allegation that polycarbonate will dissolve in non-aqueous solvents and melt or short under high electrical fields. The data in the references cited that Examiner suggest otherwise. Table 5-5 on page 323 of Handbook indicates that polycarbonates have a rating of “1”, greatest stability, for aliphatic solvents at 77 °F and 200 °F. Table 5-6 on page 329 of Handbook indicates that polycarbonate has a volume resistivity of 8×10^{16} ohm-cm. Liu performed experiments on a polycarbonate capillary electrophoresis device with an electrical field strength of up to 800 V/cm.

Applicant argues that although Jons discloses a polyol (allyl carbonate), diglycol dialkyl carbonate, it is just a one of a "grocery list" of materials suitable for the substrate layer. "Jons does not teach or suggest that specific chemical properties of diglycol dialkyl carbonate or poly (allyl carbonate) polymers would confer the ability to develop electrokinetic devices superior in performance and characteristics over thermoplastics." See the top of page 5 of the Amendment. However, diglycol dialkyl carbonate is only one of eleven items in Jons' "grocery list". The mechanical, thermal, optical, and electrical properties of all of the polymer types in the list were readily available in handbooks to one of ordinary skill in the art at the time of the invention. If there was a special situation that could not be found in a handbook one with ordinary skill in the art could easily have performed an experiment to test the suitability of that polymer type. Again, Applicant does not claim using the device under any special conditions and, in fact, through claims 1 and 2, suggest using the claimed device under regular operating conditions for a variety of standard separation processes.

Applicant argues, in regard to claim 4, that using pre-polymers instead of monomers results in a different polymer, such as reduced shrinkage and reduced breaking during the molding process. However, this does not distinguish the *final* products from one another, only possibly intermediate products. Applicant also makes allusion to crystal properties. However, it is not clear that polymerization using pre-polymers necessarily results in polymers with a different crystal structure than polymerization using monomers.

Applicant appears to argue, in regard to claim 6, that the antigens or antibodies e referred to in Soane col. 08:62 - col. 09:02 are not attached to the polymer and do not alter the chemical properties of the polymer. As for being attached to the polymer, one with ordinary skill in the art would understand from this passage that the antibodies or antigens are attached to the polymer since the trenches are filled with antibodies or antigens, since particles are moved to the antibodies or antigens, and since no mention is made of moving the antibodies or antigens. The polymer would of course be chemically altered not only by the immobilization process but also by the presence of the antibodies or antigens.

Rejections of claims 1, 2, and 4 under 35 U.S.C. 103(a) as being obvious over Liu, Encyclopedia, Handbook, and Jons

Applicant reiterates most of the arguments made against the rejections of claims 1, 2, 4, and 6 as being obvious under 35 U.S.C. 103(a) over Soane, Encyclopedia, Handbook, and Jons. The Examiner in turn relies on his rebuttal above.

Rejection of claim 3 under 35 U.S.C. 103(a) as being obvious over Jons, Encyclopedia, Handbook, and Concise Encyclopedia

Applicant essentially argues that Jons just lists diglycol dialkyl carbonate in a “grocery list” of suitable substrate materials and that polyol (allyl carbonate) polymer has substantial chemical and physical properties that make it suitable for electrokinetic devices. As noted above Jons just lists eleven types of polymers, tables of many of the chemical and physical properties of these polymers were readily available at the time of the invention, for chemical and physical properties that were not readily available experiments could have easily been performed, and nowhere in the claims are the substantial properties indicated, in fact, claims 1 and 2, suggest using the device under normal operating conditions since conventional uses are listed.

Rejections of claims 1, 2, and 4 under 35 U.S.C. 103(a) as being obvious over Webster, Encyclopedia, Handbook, and Jons

Applicant reiterates most of the arguments made against the rejections of claims 1, 2, 4, and 6 as being obvious under 35 U.S.C. 103(a) over Soane, Encyclopedia, Handbook, and Jons. The Examiner in turn relies on his rebuttal above.

Art Unit: 1795

Rejection of claim 5 under 35 U.S.C. 103(a) as being obvious over Soane, Encyclopedia, Handbook, Jons, Singh, and Wainwright

Applicant alleges, "Unlike polycarbonate and polyacrylate treated with NaOH described in Singh and Wainwright, poly(allyl carbonate) polymers do not lose mechanical properties upon treatment with strong bases." See the bottom of page 12 of the Amendment. Applicant has not provided data supporting this allegation. In any event, even if accurate, clearly one with ordinary skill in the art would use base or other reagent for hydrolysis that would not damage the polycarbonate or polyacrylate substrate. Singh and Wainwright are cited for the teaching the concept of hydrolyzing the portions of the substrate that will contact fluid so as to change its wettability, not for the use of NaOH.

Rejection of claim 5 under 35 U.S.C. 103(a) as being obvious over Liu, Encyclopedia, Handbook, Jons, Singh, and Wainwright

Applicant reiterates most of the arguments made against the rejection of claim 5 as being obvious under 35 U.S.C. 103(a) over Soane, Encyclopedia, Handbook, Jons, Singh, and Wainwright. The Examiner in turn relies on his rebuttal above.

Art Unit: 1795

Rejection of claim 5 under 35 U.S.C. 103(a) as being obvious over Jons, Encyclopedia, Handbook, Jons, Singh, and Wainwright

Applicant reiterates most of the arguments made against the rejection of claim 5 as being obvious under 35 U.S.C. 103(a) over Soane, Encyclopedia, Handbook, Jons, Singh, and Wainwright. The Examiner in turn relies on his rebuttal above.

Rejection of claim 5 under 35 U.S.C. 103(a) as being obvious over Webster, Encyclopedia, Handbook, Jons, Singh, and Wainwright

Applicant reiterates most of the arguments made against the rejections of claims 1 and 5 as being obvious under 35 U.S.C. 103(a) over Soane, Encyclopedia, Handbook, and Jons, or Soane, Encyclopedia, Handbook, Jons, Singh, and Wainwright. The Examiner in turn relies on his rebuttals above.

Rejection of claims 1, 2, and 4 under 35 U.S.C. 102(b) as being clearly anticipated by Jons

Applicant argues that although Jons discloses a polyol (allyl carbonate), diglycol dialkyl carbonate, it is just a one of a “grocery list” of materials suitable for the substrate layer. “Jons does not teach or suggest that specific chemical properties of diglycol dialkyl carbonate or poly (allyl carbonate) polymers would confer the ability to develop

Art Unit: 1795

electrokinetic devices superior in performance and characteristics over thermoplastics.” See the top of page 5 of the Amendment. However, diglycol dialkyl carbonate is only one of eleven items in Jons’ “grocery list”. The mechanical, thermal, optical, and electrical properties of all of the polymer types in the list were readily available in handbooks to one of ordinary skill in the art at the time of the invention. If there was a special situation that could not be found in a handbook one with ordinary skill in the art could easily have performed an experiment to test the suitability of that polymer type. Again, Applicant does not claim using the device under any special conditions and, in fact, through claims 1 and 2, suggest using the claimed device under regular operating conditions for a variety of standard separation processes.

For the reasons set forth above, the rejections are maintained.

Final Rejection

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1795

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Alex Noguerola/
Primary Examiner, Art Unit 1795